

Emerging affordances in videoconferencing for language learning and teaching

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Abstract. The theory of affordances (Gibson, 1977) came into focus in human-computer interactions and ecological interactive design to explore design strategies to support the actor in direct perception of action possibilities in the operation of things. However, few studies have analysed the basis of affordances in the cultural-historical development of human activity in systems that have substantial socio-cultural, pedagogical, and technological components. This study aims to identify the designed and emerging affordances in an asymmetrical (tutor-learner) videoconferencing environment for language learning. Following Engeström's (2014) Cultural Historical Activity Theory (CHAT) and an ecological Computer Assisted Language Learning (CALL) perspective, I analyse interactions between the design for language learning and technology use at the macro, meso, and micro levels of a videoconferencing project between French tutors and Irish students. I investigate how the designed technological, linguistic, and educational affordances are perceived and acted upon by the tutor-learner activity systems triggering the emergence of new affordances.

Keywords: activity theory, CALL affordances, L2 learning, desktop videoconferencing.

1. Introduction

The term 'affordance' designates an action possibility that is offered by an environment or an object to an actor in the environment either "for good or ill" (Gibson, 1977, p. 68). This relational property depends not just on the 'action possibilities' afforded by the characteristic features of the tool or the environment, but also on the users' perception and action capabilities. CALL affordances are said

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to be a unique combination of social, educational, pedagogical, and technological affordances (Blin, 2016).

An ecological CALL focuses on the interactions between language use, technology use, and language learning by learners, teachers, and other users across multiple timescales and spaces. As mentioned elsewhere (Dey-Plissonneau & Blin, 2016), “educational [and linguistic] affordances are engineered through, for example, the design of lesson plans, learning activities [...], and resources, while others emerge in moment-to-moment interactions between learners or between learners and [tutors]” (p. 298), responding to emerging ‘disturbances’ during the interaction. These are mediated by the enactment of technological affordances (e.g. text chat, webcam).

So far, mainly micro level studies have analysed tutor/learner interactions using webcam, text chat, synchronous, and asynchronous feedback, etc. and the resulting pedagogical strategies in the language learning via videoconferencing environments (Guichon & Tellier, 2017). Instead of focussing on one particular technological affordance, this study investigates how the designed technological affordances trigger new action possibilities at the micro, meso, and macro level interactions. The following research questions are thus proposed:

- What are the designed technological affordances in the learning environment?
- How do these mediate other CALL affordances for micro, meso, and macro interactions?
- What new affordances emerge in the process?

2. Method

2.1. Context

Masters’ students of teaching French as a Foreign Language (FLE) from the University of Lyon 2 (France) tutored online undergraduate Business students from Dublin City University (Ireland) learning French. Six 40-minute weekly interactions were conducted via the videoconferencing platform Visu. These sessions were recorded and incorporated into a rich multimodal corpus: ISMAEL (Guichon, Blin, Wigham, & Thouësny, 2014) (Figure1).

Figure 1. Tutor-tutee dyads and triads (ISMAEL Corpus)



2.2. Data analysis

The designed technological affordances for the videoconferencing platform Visu were identified and categorised. Three consecutive sessions’ lesson plans for four tutor-tutee groups (three triads and one dyad) were uploaded to the qualitative analysis software ATLAS.ti and the designed linguistic and educational affordances were coded inductively. The transcripts of the tutors’ debriefing sessions were uploaded on ATLAS.ti and coded deductively associating the defined technological, linguistic, and educational affordances to the tutors’ perceptions and active interpretations of them. The video recordings of the online instantiations were coded deductively on ELAN to identify the different enactments of these designed affordances. This revealed the emergence of new affordances in the three way interaction between actors, tools, and pedagogical environments.

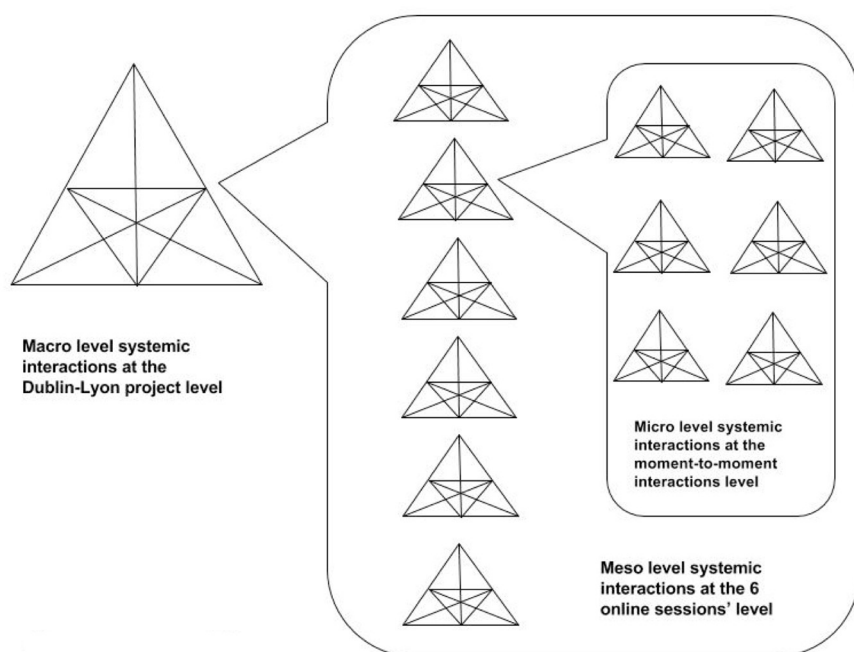
3. Findings and discussion

3.1. Macro, meso, and micro levels of the interacting activity systems

The macro level is set at the project level where the videoconferencing sessions were integrated on both universities’ programme objectives. The meso level is set

at the weekly session level where the French tutors' designed lesson plans were implemented. The micro level is set at the moment-to-moment interactions that took place within each session (Figure 2).

Figure 2. Macro, meso, and micro levels of the videoconferencing for language learning and teaching (adapted from Blin, 2016)



The findings reveal that the tutor-tutee interaction with one another and with the various components within each activity system (technology use, language use, language learning, pedagogical design) deviate from the designed script, as they perceive and enact the affordances differently.

3.2. Technological affordances

Using Cormier, Oleynik, and Lewis's (2014) affordance statement, Visu's designed technological affordances were identified and categorised as follows:

- *Information and Communication affordances* allow for the multimedia management of audio, video, images, online chats, and interactivity content forms allowing learners to process information through auditory

and visual channels. Uploading lesson designs was possible, however, sharing and group editing of lesson designs was not afforded.

- *Traceability and Temporal affordances* allow tutor-operated instant or delayed feedback. Visu offers interaction-traces (automatic recording of sessions, chats, shared docs), marker-based traces (tutor ad hoc notes during VC session, markers for localising errors), comment-based traces (post-session multimodal feedback by tutors) allowing the replay of sessions to reflect on teaching practice, viewing session plans, and sending multimodal feedback (Bétrancourt, Guichon, & Prié, 2011).
- *Navigational and Spatial affordances* allow visually guided movement through local online spaces, such as maximising and minimising windows, navigating from one window to another, moving around in on-screen spaces (tabs), such as synchronised, memo, and retrospective spaces.

3.3. Emerging affordances at the interacting micro, meso, and macro levels

Mediated by the aforementioned technological affordances, videoconferencing afforded questioning, explaining, image and video sharing, gesturing, and synchronous and asynchronous corrective feedback, etc. as possibilities for multimodal interactions. Furthermore, tutor and student agencies came into play and enacted the designed affordances differently either to overcome an unexpected ‘disturbance’ in the activity system or simply to reinterpret the aforementioned technological affordances, thus leading to emerging affordances.

Micro/Meso: disturbances such as tutors’ insufficient explaining techniques, students’ inarticulate responses, and repetitiveness in lesson plans emerged over the sessions. Role plays, question-answer, and task-based activities were employed through discussions. However, discussion as a pedagogical tool could not afford critical exploratory exchange. This is not easy to implement in synchronous settings, especially in L2 (second language) for B2 (intermediate) level students. The challenge lies in designing questions that can lead to deeper thinking. It was observed that discussions where the students could relate their experiences resulted in greater risk-taking. It is recommended that at the meso level, tutors work on a performative questions framework affording expert questioning rather than teaching-by-telling, reading, or watching videos. However, only training tutors to question may not always induce deep reflective dialogues. Students’

feedback expressed that they often lacked vocabulary and content knowledge on the discussed topics. A flipped class approach at the meso level helped counter this problem for one tutor implementing it. However, only the more competent of the two students benefitted from it. From an educational affordance perspective, with access to resources in the pre-session phase, students could familiarise themselves with the vocabulary and ideas, affording deeper reflexive discussions.

Macro: repetitiveness and a lack of coherence between lesson plans were observed. Individual tutor pairs planned a lesson autonomously while integrating feedback from both Lyon and Dublin instructors. The final lesson plan was then shared with the other tutors before the online session. Tutors faced difficulty in appropriating these lesson plans to their respective activity systems. To avoid this, lesson plans could be designed collaboratively on a dedicated discussion forum affording group document sharing and concerted editing. All six lesson plans could have been analysed beforehand to have a sense of inter-session coherence.

4. Conclusion

The desktop videoconferencing environment's affordances are sometimes designed directly, sometimes triggered by the users' agencies, or sometimes occur due to situational deviations, tensions, etc. in the pedagogical interactions. A user may perceive an affordance but may not enact it at all or may not perceive an affordance at all. Despite the inconvenience of being mainly tutor-centred, Visu's technological affordances were inscribed within broader educational affordances which afforded linguistic, socio-cultural, and educational action possibilities. New action possibilities, as demonstrated by some tutors, show the way to a more democratic use of the platform.

A taxonomy of the designed and emerging CALL affordances, along with user perceptions, pedagogical actions, and strategies in desktop videoconferencing for language learning, needs to be further developed in order to inform online language learning, teacher training, and innovation in CALL pedagogy.

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